What is claimed is:

1. A thin film coil including:

a helical first coil formed on a substrate, the first coil being wound around an axis perpendicular to the in-plane direction of the substrate in the in-plane direction thereof, the first coil having an end surface having the greatest width, the end surface being located opposite to the substrate;

a second coil formed in a region between windings of the first coil; and

an insulating wall which isolates the first coil from the second coil.

2. A thin film coil according to claim 1, wherein the first coil has a progressively greater width farther away from the substrate.

3. A thin film coil according to claim 1, wherein the insulating wall becomes progressively thinner farther away from the substrate.

4. A thin film coil according to claim 1, wherein the first coil is formed by using plating, sputtering or chemical vapor deposition.

5. A thin film coil according to claim 1, wherein the insulating wall is made of a cured fluidic organic material.

6. A thin film coil according to claim 1, wherein the insulating wall is

made of spin on glass (SOG).

7. A method of forming a thin film coil including the steps of:

forming a helical first coil on a substrate, the first coil being wound around an axis perpendicular to the in-plane direction of the substrate in the in-plane direction thereof, the first coil having an end surface having the greatest width, the end surface being located opposite to the substrate;

forming an insulating layer so as to fill a region between windings of the first coil;

selectively etching the insulating layer using the first coil as a mask so that a side surface of the first coil is covered with an insulating wall formed of a part of the insulating layer; and

forming a second coil so as to fill the region between windings having the side surface covered with the insulating wall.

8. A method of forming a thin film coil according to claim 7, wherein the step of forming the first coil includes the steps of:

forming a resist layer including a helical pattern on the substrate, the helical pattern having an end surface having the smallest width, the end surface being located opposite to the substrate; and

forming the first coil so as to fill a region between windings of the helical pattern.

9. A method of forming a thin film coil according to claim 7, wherein the first coil is formed so that the first coil has a progressively greater width farther away from the substrate.

10. A method of forming a thin film coil according to claim 7, wherein the insulating layer is selectively etched so that the insulating wall has a progressively smaller width farther away from the substrate.

11. A method of forming a thin film coil according to claim 7, wherein the first coil is formed by use of plating.

12. A method of forming a thin film coil according to claim 7, wherein a fluidic organic material is used to form the insulating layer.

13. A method of forming a thin film coil according to claim 7, wherein SOG is used to form the insulating layer.

14. A method of forming a thin film coil including the steps of:

forming an insulating layer on a substrate;

forming a helical resist pattern on the insulating layer, the resist pattern being wound around an axis perpendicular to the in-plane direction of the substrate in the in-plane direction thereof;

selectively etching the insulating layer using the resist pattern as a mask, thereby forming a helical groove having an opened end having the

greatest width, the opened end being located opposite to the substrate;

forming a first coil so as to fill the helical groove, the first coil having an end surface having the greatest width, the end surface being located opposite to the substrate;

selectively etching the insulating layer using the first coil as a mask so that a side surface of the first coil is covered with an insulating wall formed of a part of the insulating layer; and

forming a second coil so as to fill the region between windings having the side surface covered with the insulating wall.

15. A method of forming a thin film coil according to claim 14, wherein the helical groove is formed so that the helical groove has a progressively greater width farther away from the substrate.

16. A method of forming a thin film coil according to claim 14, wherein the first and second coils are formed by using plating, sputtering or chemical vapor deposition.

17. A thin film magnetic head including: at least two magnetic layers magnetically coupled to each other and facing each other with a gap layer in between near and in a surface to be faced with a recording medium; and a thin film coil sandwiched in between the two magnetic layers or in between other magnetic layers coupled to the two magnetic layers,

the thin film coil including:

a helical first coil formed on a substrate, the first coil being wound around an axis perpendicular to the in-plane direction of the substrate in the in-plane direction thereof, the first coil having an end surface having the greatest width, the end surface being located opposite to the substrate;

a second coil formed in a region between windings of the first coil; and

an insulating wall which isolates the first coil from the second coil.

18. A method of manufacturing a thin film magnetic head including at least two magnetic layers magnetically coupled to each other and facing each other with a gap layer in between near and in a surface to be faced with a recording medium, and a thin film coil sandwiched in between the two magnetic layers or in between other magnetic layers coupled to the two magnetic layers, the method including:

the step of forming the thin film coil including the steps of:

forming a helical first coil on a substrate, the first coil being wound around an axis perpendicular to the in-plane direction of the substrate in the in-plane direction thereof, the first coil having an end surface having the greatest width, the end surface being located opposite to the substrate;

forming an insulating layer so as to fill a region between windings of the first coil;

selectively etching the insulating layer using the first coil as a mask so that a side surface of the first coil is covered with an insulating

wall formed of a part of the insulating layer; and

forming a second coil so as to fill the region between windings having the side surface covered with the insulating wall.

19. A method of manufacturing a thin film magnetic head including at least two magnetic layers magnetically coupled to each other and facing each other with a gap layer in between near and in a surface to be faced with a recording medium, and a thin film coil sandwiched in between the two magnetic layers or in between other magnetic layers coupled to the two magnetic layers, the method including:

the step of forming the thin film coil including the steps of:

forming an insulating layer on a substrate;

forming a helical resist pattern on the insulating layer, the resist pattern being wound around an axis perpendicular to the in-plane direction of the substrate in the in-plane direction thereof;

selectively etching the insulating layer using the resist pattern as a mask, thereby forming a helical groove having an opened end having the greatest width, the opened end being located opposite to the substrate;

forming a first coil so as to fill the helical groove, the first coil having an end surface having the greatest width, the end surface being located opposite to the substrate;

selectively etching the insulating layer using the first coil as a mask so that a side surface of the first coil is covered with an insulating wall formed of a part of the insulating layer; and

forming a second coil so as to fill the region between windings having the side surface covered with the insulating wall.